

2003
Annual Report
On the
Municipal Separate Storm Sewer System (MS4)
for
Fairfax County, Virginia

in compliance with the
Authorization to Discharge Under the
Virginia Pollutant Discharge Elimination System
Permit No. VA0088587
and the
Virginia State Water Control Law
Clean Water Act

INTRODUCTION

Fairfax County has been a participant in the NPDES Phase I permit program since the early 1990's, having conducted extensive countywide water quality monitoring as part of the Part I and Part II permit application process, received the first permit in 1997, reapplied for another five years in 2001 and received the second permit in 2002. Over the 10 plus years many positive changes have taken place in the County's Stormwater Management Program which at the onset was primarily focused on water quality monitoring. The first change, 1998, was the funding of a Stream Protection Strategy (SPS) survey which included 114 principal monitoring sites in 30 watersheds over 400 square miles of land and included biological monitoring (aquatic insects and fish) and a general evaluation of the localized watershed features (vegetation and in-stream features). The County had long ago recognized the need to protect the living environment of the stream valleys and the SPS study provided valuable information defining the state of our streams both biological and physical. Earlier stream evaluation studies had focused solely on erosion, conveyance of water downstream and flood control. The next phase to protecting the County's valuable resource, the stream valleys, was the County response to the 2001 State amendments to the Bay regulations, revising the method to assign Resource Protection Areas (RPA) to water bodies by using perennial flow. Perennial stream protocols were developed by the County and approved by the State, and the County embarked on a survey of the headwater reaches of streams to designate perennial streams upstream of existing RPAs. The length of the perennial streams in the County increased from over 600 miles to over 900 miles. These changes were adopted by the Board of Supervisors in November 2003 as amendments to County's Chesapeake Bay Preservation Ordinances.

The development of Watershed Management Plans for all 30 watersheds is the next step in the County's Watershed Planning Program. Data from the most recently completed Countywide Physical Stream Assessment of stream conditions integrated with the SPS study and other watershed and stream monitoring information is being used for evaluating the impact of watershed changes on stream quality. The stream assessment included an evaluation of overall stream habitat and physical conditions, and descriptions of features such as stream crossings, stormwater drainage pipes, utility crossings, streambank

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erosion, deficient buffers, illegal dump sites and stream obstructions. Citizen input will be an important component to each watershed management plan. The County has developed an extensive public involvement campaign which involves engaging the community and hosting public meetings to develop solutions to the problems identified as part of the watershed plan development process.

The 2003 Annual Report on the Municipal Separate Storm Sewer System (MS4) in Fairfax County was prepared in compliance with the Commonwealth of Virginia, Department of Environmental Quality, Virginia Pollutant Discharge Elimination System (VPDES) Permit No. 0088587 (**Appendix A**) reissued to Fairfax County on January 24, 2002 for a second five years. The permit is in compliance with the provisions of the Clean Water Act as amended and pursuant to the State Water Control Law and regulations adopted pursuant thereto. The permit authorizes all existing and new stormwater point source discharges to waters of the state from those portions of the MS4 owned or operated by Fairfax County, except as prohibited under Part I.A.1.b of the permit. This report is intended to satisfy the Annual Report submittal requirements of the permit, covering the period January 1, 2003 through December 31, 2003, and is the seventh annual report. This report is prepared in accordance with the requirements of section I.C.4 of the permit.

Fairfax County received recognition by the Chesapeake Bay Program as a Gold Award recipient for the second time since 1997 under the Chesapeake Bay Partner Community program. "The Chesapeake Bay Partner Community Award recognizes, encourages, and supports local government in the Chesapeake Bay watershed whose actions demonstrate their commitments to protecting and restoring the Chesapeake Bay, its rivers, and its streams."

a. Watershed Management Program

Introduction

Fairfax County's Watershed Management Program includes conformance to regulations, development and enforcement of policies, watershed planning, establishment of engineering design criteria, safety aspects, land rights and restrictions, performance, and maintainability. The County recognizes that alternatives to achieving water quality improvement goals have to be addressed continuously in order to provide environmentally sensitive and more cost effective programs and projects for its citizenry. The primary objective of the Stormwater Planning Division (SWPD) is to develop comprehensive stormwater management plans and to review current Countywide policies affecting the ecosystem and stormwater management issues. The SWPD promotes policies to improve and protect the quality of life and support environmental goals of the County, and is working to develop a framework that would address the overall environmental goals and objectives of the County and also ensure a link between regulations and project implementation through the planning, design, construction, and maintenance phases. The County's structural stormwater control program involves the collection, detention, and control of stormwater discharge with the objective of meeting the overall goal of reducing phosphorous discharge levels by 40 percent (50 percent in the Water Supply Protection Overlay District). A key requirement for controlling stormwater discharge is to limit post development runoff to that which does not exceed pre-development runoff rates. This is accomplished through a variety of means and Best Management Practices (BMPs), including on site detention and regional ponds, ponds incorporating water quality treatment, PL-566 lakes, underground chambers, percolation trenches, roof top storage, and other newer Low Impact Development (LID) techniques such as rain gardens.

Perennial Streams

Perennial streams receive designation as a resource protection area (RPA) under the County's Chesapeake Bay Preservation Ordinance (CBPO). This entitles them to a 100 foot riparian buffer and protects them from development. Under the original CBPO, United State Geological Survey's (USGS) 7.5 minute quadrangle maps were the only tool used to make perenniality designations. However, these maps are known to have errors in consistently and accurately depicting perennial streams. The Chesapeake Bay Local Assistance Board adopted amendments to the Chesapeake Bay Preservation Area Design and Management Regulations on December 10, 2001, with an effective date of March 1, 2002. The state mandated that Fairfax County and other Tidewater jurisdictions implement these changes by December 31, 2003. Chapter 118 of the CBPO amendments changed the wording of what is protected by RPA to "tributary streams" with "water bodies with perennial flow". The Fairfax County perennial stream identification and mapping project was initiated in September 2001 to address these changes.

These amendments include a requirement to identify water bodies with perennial flow by using a scientifically valid method to conduct site-specific surveys. In response to this, the DPWES-SWPD developed a protocol for identifying perennial streams in Fairfax County using geomorphological, biological, and hydrological characteristics as indicators for perennial streams. **Figure 1** shows two SPS team members searching for benthic macroinvertebrates while surveying a stream. In June of 2003, SWPD gave a two day training workshop geared towards consultant and engineering groups who would be involved in making perennial stream determinations, **Figure 2**, in order to address questions concerning the application of the protocol. A copy of the perennial stream protocol and field sheet (**Appendix B**) can be found at:

<http://www.fairfaxcounty.gov/dpwes/watersheds/perennial.htm#protocol>.



Figure 1. SPS Team members search for benthic macroinvertebrates during a perennial stream survey.



Figure 2. Perennial Streams Workshop put on by Fairfax County SWPD.

In October of 2003, the countywide survey was completed and new RPAs were adopted by the Board of Supervisors on November 17, 2003, becoming effective the following day. The extensive field survey established 17.06 square miles (or 10,921.57 acres) of new RPA in the county, an increase of one-third from 55.3 square miles to 72.3 square miles for a total of 968 perennial stream miles. **Figure 3** illustrates the 1993 RPA streams (depicted in green) and the new 2003 RPA streams (depicted in red) of the Difficult Run Watershed. The County Chesapeake Bay Preservation Area maps display the boundaries of the RPAs adopted by the Board in 1993 and the additional RPAs adopted by the Board in 2003 in greater detail. The maps display the general locations of the RPA boundaries for planning purposes and the actual limits may be further refined by detailed field studies conducted at the time a development plan is